

Systematic Review 12E

1. ellipse
2. chord
3. radius
4. diameter or chord
5. A
6. arc
7. sector
8. $\frac{1}{2}$
9. perpendicular
10. Check your drawing using a ruler and a protractor.
11. 225° : Answers that are close to this are acceptable.
12. 5
13. 6
14. $180^\circ \times 6 = 1,080^\circ$
15. $1,080^\circ \div 8 = 135^\circ$
16. $180^\circ - 135^\circ = 45^\circ$
17. $45^\circ \times 8 = 360^\circ$
18. $Y - 2X = 4 \Rightarrow Y = 2X + 4$

$$\begin{aligned}
 Y + X = -5 &\Rightarrow (2X + 4) + X = -5 \\
 3X + 4 &= -5 \\
 3X &= -9 \\
 X &= -3
 \end{aligned}$$

$$\begin{aligned}
 Y + X = -5 &\Rightarrow Y + (-3) = -5 \\
 Y &= -2
 \end{aligned}$$

$$\text{solution} = (-3, -2)$$

19. $Y - 4X = 4 \Rightarrow Y = 4X + 4$
- $$\begin{aligned}
 Y + 2X = -2 &\Rightarrow (4X + 4) + 2X = -2 \\
 6X + 4 &= -2 \\
 6X &= -6 \\
 X &= -1
 \end{aligned}$$

$$\begin{aligned}
 Y - 4X = 4 &\Rightarrow Y - 4(-1) = 4 \\
 Y + 4 &= 4 \\
 Y &= 0
 \end{aligned}$$

$$\text{solution} = (-1, 0)$$

20. $Y - X = 0 \quad Y = X$
- $$\begin{aligned}
 Y - 3X = -6 &\Rightarrow (X) - 3X = -6 \\
 -2X &= -6 \\
 X &= \frac{-6}{-2} = 3
 \end{aligned}$$
- $$\begin{aligned}
 Y - X = 0 &\Rightarrow Y - (3) = 0 \\
 Y &= 3
 \end{aligned}$$
- $$\text{solution} = (3, 3)$$

Lesson Practice 13A

1. radius
2. circumference
3. $C = \pi d$ or $C = 2\pi r$
4. $A = \pi r^2$
5. x, y, π (or short axis, long axis, π)
6. square
7. latitude
8. longitude
9. minutes
10. prime meridian
11. $C = 2\pi r \approx (2)(3.14)(3) = 18.84$ in
12. $A = \pi r^2 \approx (3.14)(3^2) = 28.26$ in²
13. $A = \pi r^2 \approx \frac{22}{7}(7^2) = \frac{22}{7}(49) = 154$ m²
14. $A = \frac{1}{2}(12) \times \frac{1}{2}(8) \times \pi \approx (6)(4)(3.14) = 75.36$ ft²
15. $50^\circ 7' \text{ N}; 8^\circ 41' \text{ E}$
16. $18^\circ 58' \text{ N}; 72^\circ 50' \text{ E}$
17. 4,082 mi
18. $4,082 \times 1.6 = 6,531.2$ km

Lesson Practice 13B

1. diameter
2. circumference
3. area
4. length
5. degrees
6. 0; longitude
7. latitude

8. latitude; longitude
9. seconds
10. square
11. $C = \pi d \approx (3.14)(10) = 31.4$ in
12. $A = \pi r^2 \approx (3.14)(5^2) = 78.5$ in²
13. $C = \pi d \approx \frac{22}{7} \times \frac{14}{1} = 44$ m
14. $A = \frac{1}{2}(10) \times \frac{1}{2}(6) \times \pi \approx$
 $(5)(3)(3.14) = 47.1$ ft²
15. 40°43' N; 74°01' W
16. 33°55' S; 18°22' E
17. 7,804 mi
18. $7,804 \times 1.6 = 12,486.4$ km

16. complementary: They are formed from perpendicular lines.
17. obtuse
18. straight
19. $C = 2\pi r \approx (2)(3.14)(8) = 50.24$ units
20. triangle:
 $A = \frac{1}{2}bh = \frac{1}{2}(3.3 + 3.3)(5.5) = 18.15$ ft²
 semicircle:
 $A = \frac{1}{2}\pi r^2$ (half the area of the whole circle)
 $A \approx \frac{1}{2}(3.14)(3.3^2) \approx 17.1$ ft²
 total:
 $A = 18.15 + 17.1 = 35.25$ ft²

Systematic Review 13C

1. $A = \pi r^2 \approx (\frac{22}{7})(\frac{7}{2})^2 = 38.5$ in²
2. trapezoid
3. check with a ruler: diameter should be 7.5 in
 $C = 2\pi r \approx (2)(3.14)(3.75) = 23.55$ in
4. radius
5. latitude
6. longitude
7. $A = \frac{1}{2}(14) \times \frac{1}{2}(4) \times \pi \approx$
 $(7)(2)(3.14) = 43.96$ in²
8. 4: A regular parallelogram is a square.
9. Use a ruler and protractor to check.
10. 320°: It may be easier to measure the acute angle, and subtract that number from 360°.
11. 64°09' N; 21°57' W
12. 39°55' N; 116°23' E
13. 4,905 mi
14. $4,905 \times 1.6 = 7,848$ km
15. EGD; vertical angles

Systematic Review 13D

1. $C = 2\pi r \approx 2 \times \frac{22}{7} \times 3.5 =$
 $2 \times \frac{22}{7} \times \frac{7}{2} = 22$ in
2. square or rectangle
3. diameter
4. tangent
5. latitude
6. longitude
7. $A = \frac{1}{2}(6) \times \frac{1}{2}(2) \times \pi \approx$
 $(3)(1)(3.14) = 9.42$ in²
8. secant
9. $(N - 2)180^\circ \Rightarrow ((20) - 2)180^\circ =$
 $(18)180^\circ = 3,240^\circ$
 $3,240^\circ \div 20 = 162^\circ$
10. $180^\circ - 162^\circ = 18^\circ$ or
 $360^\circ \div 20 = 18^\circ$
11. $(2)(50^\circ) = 100^\circ$
12. $360^\circ - 100^\circ = 260^\circ$
13. 100°
14. 34°36' S; 58°27' W
15. 37°49' S; 144°58' E

16. $\angle FGE \cong \angle BGC$: vertical angles
 $m\angle BGC + m\angle AGB = 90^\circ$:
 complementary angles
 $m\angle AGB = 90^\circ - 43^\circ = 47^\circ$
17. $m\angle EGD = 90^\circ - 43^\circ = 47^\circ$:
 complementary angles
 $m\angle EGC = 90^\circ + 47^\circ = 137^\circ$
18. $m\angle BGC = m\angle FGC - m\angle FGB =$
 $180^\circ - 135^\circ = 45^\circ$
19. $m\angle AGB = m\angle FGB - 90^\circ =$
 $135^\circ - 90^\circ = 45^\circ$
 $m\angle EGD = m\angle AGB = 45^\circ$:
 vertical angles
20. semicircle:
 $C = \frac{1}{2}(2\pi r) \approx$
 $\frac{1}{2}(2)(3.14)(3.3) = 10.36$ ft
 sides of triangle:
 $6.2 + 6.2 = 12.4$ ft
 total:
 $10.36 + 12.4 = 22.76$ ft

Systematic Review 13E

- diameter
- $A = \pi r^2$
- $\frac{22}{7}$
- 3.14
- latitude
- longitude
- $A = \frac{1}{2}(9) \times \frac{1}{2}(3) \times \pi \approx$
 $(4.5)(1.5)(3.14) = 21.2$ in²
- 60
- sphere
- diameter
- $A = \pi r^2 \approx (3.14)(3.5)^2 = 38.47$ m²
- $C = \pi d \approx (3.14)(1.25) = 3.925$ or 3.93 cm
- $360^\circ \div 40^\circ = 9$
- infinite

- exterior
- alternate exterior
- MLK, CEH
- GHE

19. $3Y + 2X = 12$
 $(2)(4Y - X = 5) \Rightarrow \frac{8Y - 2X = 10}{11Y = 22}$
 $Y = 2$
 $3Y + 2X = 12 \Rightarrow 3(2) + 2X = 12$
 $6 + 2X = 12$
 $2X = 6$
 $X = 3$

solution = (3, 2)

20. $Y - X = -3$
 $Y - 2X = -4 \Rightarrow \frac{-Y + 2X = 4}{X = 1}$
 $Y - X = -3 \Rightarrow Y - (1) = -3$
 $Y = -2$
 solution = (1, -2)

Lesson Practice 14A

- base, height
- faces
- squares
- edges
- circle
- cubic
- vertices
- $V = (4)(4)(4) = 64$ in³
- $V = (5)(4)(3) = 60$ ft³
- $V = Bh = \pi r^2 h \approx$
 $(3.14)(10^2)(5) = 1,570$ ft³
- $V = (5)(7)(4) = 140$ ft³
- $V = Bh = \pi r^2 h \approx$
 $(3.14)(10^2)(25) = 7,850$ ft³